

REMARKS

Claims 60 and 61 are pending in the present application. In the Office Action dated November 25, 2003, the Examiner rejected claim 60 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. The Examiner also rejected claim 61 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,124,207, to Robinson et al. ("Robinson"). Finally, the Examiner rejected Claim 60 under 35 U.S.C. § 103(a) as being unpatentable over Robinson in view of U.S. Patent No. 5,554,320, to Yianakopoulos ("Yianakopoulos"). Applicants disagree with these rejections and wish to clarify various distinctions of applicants' invention over the cited art. Reconsideration of the invention is therefore requested in light of the foregoing amendments and following remarks.

Some of the technical differences between the applied reference and embodiments of the invention will now be discussed. Of course, these discussed differences, which are disclosed in detail in the patent specification, do not define the scope or interpretation of any of the claims. Where presented below, such discussed differences merely help the Examiner appreciate important claim distinctions discussed thereafter.

The various embodiments of the present invention are directed to planarizing microelectronic substrate assemblies on fixed abrasive polishing pads with non-abrasive planarizing solutions. In one aspect of the invention, a lubricating planarizing solution without abrasive particles is deposited onto a fixed-abrasive polishing pad having a body, a planarizing surface on the body, and a plurality of abrasive particles fixedly attached to the body at the planarizing surface. The front face of a substrate is pressed against the lubricating planarizing solution and at least a portion of the planarizing surface of the polishing pad. At least one of the polishing pads or the substrate assembly is then moved with respect to the other to impart relative motion therebetween. As the substrate assembly moves relative to the polishing pad, regions of the front face are separated from the abrasive particles in the polishing pad by a lubricant-additive in the planarizing solution.

In one particular embodiment, regions of the front face of the substrate are separated from the abrasive particles by dissolving the lubricant-additive into a non-abrasive

solution to form the lubricating planarizing solution, and then depositing the lubricating planarizing fluid onto the polishing pad as the substrate moves relative to the polishing pad. The lubricant-additive may be glycerol, polyethylene glycol, polypropylene glycol, CARBOPOL (manufactured by B.F. Goodrich), polyvinyl alcohol, POLYOX (manufactured by Union Carbide), or some other lubricating liquid. The concentration of the lubricant-additive in the non-abrasive solution is selected so that the lubricating planarizing solution has a viscosity of at least approximately between 4-100 cp, and more generally between 10-20 cp. The lubricating planarizing solution provides a protective boundary layer between the front face of the substrate and the abrasive planarizing surface to inhibit the fixed abrasive from overly abrading or otherwise damaging the substrate.

The Examiner has cited the Robinson reference for disclosing an apparatus for making a slurry having first and second containers. The Robinson apparatus, however, is directed to the manufacture of *abrasive slurries*. As detailed more fully above, the embodiments of the present invention are directed to *non-abrasive* slurry materials. The Examiner has further cited the Yianakopoulos reference for disclosing a cleaning solution comprised of water and polymeric plastic materials.

The Examiner's rejection is improper in light of the changes to 35 U.S.C. § 103 of the Patent Act. In particular, the Examiner is referred to section 103(c) of the Act, which provides that:

Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

The statute pertains to applications filed after November 29, 1999, including divisional and continuation applications that claim priority to applications filed prior to that date.

The present divisional application was filed on July 25, 2001, and claims priority to parent application No. 09/356,808, filed on July 20, 1999. The Robinson reference issued on

September 26, 2000, and is assigned to Micron Technology, the same owner of the present application. Because Robinson issued after the priority filing date of the parent application Robinson would only qualify as prior art under § 102(e). New section 103(c) provides that such a reference shall not preclude patentability on grounds of obviousness because the subject matter of Robinson and the presently claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment.

Accordingly, applicants respectfully submit that Robinson is not prior art, which renders the Examiner's rejection under 35 U.S.C. § 103 moot. Claims 60-61 are, therefore, patentable. These remarks are made solely to facilitate prosecution of the invention and are not an admission that Robinson would otherwise render the invention obvious.

Turning now to the claims, specific differences between the claim language and the applied art will be specifically pointed out. Claim 61, as amended, recites in pertinent part, "A planarizing machine for planarizing microelectronic-device substrate assemblies, comprising...a support table...a polishing pad on the support table, the polishing pad having a body, a planarizing surface on the body, and a plurality of abrasive particles fixedly attached to the body at the planarizing surface...a carrier assembly having a carrier head configured to hold a substrate assembly and a drive mechanism attached to the carrier head to move the carrier relative to the polishing pad...*a first container and a supply of a non-abrasive solution in the first container...a second container and a supply of a non-abrasive lubricant-additive in the second container...*" (Emphasis added). Robinson does not disclose this. Robinson is directed to an apparatus for manufacturing an abrasive slurry. Claim 61 is therefore allowable over the cited reference. Claims depending from claim 61 are similarly allowable based upon the allowable form of the base claim and further in view of the additional limitations present in the dependent claims.

With regard to Examiner's rejection under 35 U.S.C. § 112, second paragraph, applicants respectfully submit that the amendment to Claim 61 addresses this basis for rejection.

Claims 62-105 are new. No new matter has been introduced through the presentation of these new claims.

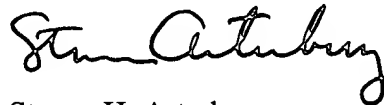
As a preliminary matter, applicants note that the PTO-1449's from the Information Disclosure Statements filed on May 1, 2002 and January 14, 2004, have not been

returned. The Examiner is respectfully requested to initial and sign the PTO-1449's and return them to the undersigned attorney.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a timely Notice of Allowance are earnestly solicited.

Respectfully submitted,

DORSEY & WHITNEY LLP



Steven H. Arterberry
Registration No. 46,314
Telephone No. (206) 903-8787

SHA:tlm

Enclosures:

Postcard
Check
Fee Transmittal Sheet (+ copy)

DORSEY & WHITNEY LLP
1420 Fifth Avenue, Suite 3400
Seattle, WA 98101-4010
(206) 903-8800 (telephone)
(206) 903-8820 (fax)

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